cannon firing in Walhalla, S. C., in celebration of the presidential election, this being in November, 1884; but soon the sounds were found to issue *from the ground* and from a ridge to the southwest of the mountain. The explosive sounds continued till late in the night. At times they seemed to proceed from the ground immediately under the observers. In early days when bears were plentiful the pioneers said the sounds were caused by these animals rolling small boulders off the mountain sides in search of worms, snails, etc., but the bears have passed and the sounds still continue. Later the sounds were ascribed to "harnts" (haunts or ghosts); two men were murdered in "the sixties" and buried at some unknown point on the "Bald." Some have heard these sounds so near them in the woods that the sound was like that of a falling tree. But ordinarily the sound is like distant firing, as noted above. They are not heard at all times, people having spent the night on the peak and heard nothing. The writer can verify all the statements made above. They are strictly true, and it is with the hope of calling the attention of scientific men to the subject that I present this brief account of the mystery of a mountain.

HURRICANE OF SEPTEMBER 6.

In connection with the hurricane of September 6 Mr. Joseph Ridgway, Jr., of St. Thomas, W. I., forwards the following extract from the report of Captain Rusch of the German steamship *Rhenania* from Hamburg, which encountered a severe hurricane September 6–7, N. 31° 45′, W. 47° 25′:

Up to 6 p. m., September 6, there was no appearance of bad weather; at 11 p. m., wind southeast by east; on September 7, 1 a. m., encountered full force of a hurricane, with wind northeast by north, force 12 on the Beaufort scale; barometer 29.55. At 4 a. m., wind southeast by east; barometer 29.20. At 5 a. m., foretopmast overboard; heavy seas cleared the deck; two officers' staterooms smashed; engine skylights and part of bulwarks washed overboard; one boat smashed; barometer 28.95. At 6:30 a. m., wind at its greatest force during the storm; barometer 28.70. At 7 a. m., wind south by east; barometer 28.75. At 8 a. m., wind southwest. At 11 a. m., wind moderated and at noon wind had died away. On the 4th Captain Rusch had spoken the English steamer *Wooler*, of London, which was then repairing her engine, probably after having passed through the same storm.

METEOROLOGICAL OBSERVATIONS MADE TO DETERMINE THE PROBABLE STATE OF THE SKY AT SEVERAL STATIONS ALONG THE PATH OF THE TOTAL ECLIPSE OF THE SUN, MAY 28, 1900.

By Prof. FRANK H. BIGELOW.

Having regard to the cost of establishing temporary eclipse stations, and the losses to science in case a clear view of the sun is not secured during totality, it is proper to determine as far as practicable the probable state of the sky along the path, with the view of selecting the best sites for the observations. To do this a study may be made of the cloud conditions prevailing annually along the shadow-track for a period of time including the date of the eclipse. Certain areas may show greater tendency to cloudiness than others, and this fact will have some weight with observers in choosing their stations.

The meteorological features are, of course, of too uncertain a nature to make it possible to precisely forecast the type of weather that will occur, because storm conditions in transit over the United States might for the day in question supersede the average normal state prevailing in the eclipse districts.

Attempts to thus give an idea of the probable weather conditions likely to occur have already been made in previous cases, at the suggestion of Prof. D. P. Todd. He claims complete success in Chili in 1893, and a partial success in Japan in 1896. The path of the eclipse in India, January, 1898, is being similarly studied. The observations in Japan and in India have been made by the Government Services. The eclipse track for May 28, 1900, passes over the Southern States, from New Orleans, La., northeastward to Norfolk, Va., and it will accordingly be surveyed by the United States Weather Bureau for the benefit of the astronomical expeditions.

The plan proposed by Professor Todd has been followed in this investigation as follows: Beginning with May 15, 1897, and continuing until June 15, 1897, so as to include May 28 centrally, observations were made at 66 stations, whose locations are shown on Chart VII, covering quite uniformly the portions of the States of Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, and Louisiana, over which the track is plotted. The only observations made at stations outside the northern and the southern limits of the path and included are Saluda, S. C., and Athens, Ga. The *general state of the sky* at 8 a. m., 8:30 a. m., and 9 a. m., was noted under the instructions, "observe carefully the state of the sky over the whole heavens, and enter the following notation: 0=sky entirely clear; 1=sky ¼ cloudy; 2=sky ½ cloudy; 3=sky ¾ cloudy; 4=sky all cloudy." At the same hours *the state of the sky near the sun* was observed using the notation: "0=sun clear from clouds; 1=sun in scattered clouds; 2=sun in a mass of clouds; 3=sun quite invisible." The observers, whose names appear in Table 2, were generally volunteers who did this work at the request of the Weather Bureau. Their cooperation has, therefore, been highly appreciated.

A specimen of the tabulation for Raleigh, N. C., is inserted for inspection as Table 1, but it is impracticable to reproduce the whole set of stations in the WEATHER REVIEW.

TABLE 1.—*Observations made at Raleigh, N. C., May* 15 *to June* 15, 1897, *by C. F. von Herrmann.*

Date.	General state of sky, a. m.			Sky near sun, a. m.			General description of the condition of sky. (Seventy-fifth meridian time.)
	8:00	8:30	9:00	8:00	8:30	9:00	
May 15	4	4	4	3	3	3	Disk of sun just barely visible occasionally between 8 and 9.
16	3	3	2	2	2	2	Disk of sun visible, but through thin to thick cirrus clouds.
17	0	0	0	0	0	0	Considerable haze, but not enough to interfere with astronomical observations.
18	0	0	0	0	0	0	Clear, except a few white cumulus clouds here and there.
19	0	0	0	0	0	0	No clouds, but considerable haze.
20	0	0	0	0	0	0	A little haze.
21	1	2	2	0	1	1	Thin cirro-cumulus over face of sun, 8:25 to 9:25, disk visible.
22	1	0	0	1	0	0	Thin cirrus at 8 a. m., soon disappearing; light haze remained, not thick.
23	0	0	0	0	0	0	Very little haze.
24	3	3	4	1	1	2	Cirro-cumulus.
25	0	0	0	0	0	0	Rather thick haze, approaching fine cirrus in texture.
26	0	0	0	0	0	0	Rather thick haze in vicinity of sun.
27	0	0	0	0	0	0	
28	1	1	1	1	1	1	Cirrus, sun mostly clear of clouds.
29	4	4	4	3	3	3	Cloudy, rainy weather.
30	4	4	4	3	3	3	
31	4	4	4	3	3	3	
June 1	1	3	4	0	1	2	Nearly clear at 8 but becoming quite cloudy by 9 a. m.
2	4	4	4	3	3	3	
3	4	4	4	3	3	3	Cloudy, rainy weather, strato-cumulus.
4	4	4	4	3	3	3	
5	4	4	4	3	3	3	
6	1	1	1	1	1	1	Alto-cumulus, cumulus.
7	4	4	4	3	3	3	Strato-cumulus.
8	4	4	4	3	3	3	
9	4	4	4	3	3	3	
10	1	1	1	1	0	1	A few alto-cumulus.
11	0	0	0	0	0	0	Few cirrus, not near sun.
12	2	2	3	2	2	2	Cirrus over face of sun, not obscuring disk.
13	0	0	0	0	0	0	Some haze in vicinity of sun.
14	4	4	4	2	2	2	
15	0	0	0	0	0	0	
Total.	62	64	66	44	44	47	

In order to present the result in compact form, the sums of

the numbers entered in the tables, like Table 1, under the respective columns, are collected in Table 2. This indicates the total cloudiness recorded. Then the total sums of the three several observations under the two general heads are transferred from Table 2 to the chart, where near the name of a station appears two numbers. The left-hand number is the total cloudiness recorded in the above notation for the whole sky; the right-hand is the total cloudiness for the sky near the sun. The maximum number, if complete cloudiness prevailed every day at the three observations, would be 394 for the general state of the sky, and 288 for the sky near the sun. The totals can, therefore, be readily reduced to percentages, on dividing them by this maximum number.

TABLE 2.

Stations.	Observers.	General state of the sky, a. m.				Sky near the sun, a. m.			
		8:00	8:30	9:00	Sum.	8:00	8:30	9:00	Sum
Virginia.									
Cape Henry	B. A. Blundon	71	72	67	210	35	40	40	115
Norfolk	J. J. Gray	58	55	59	172	48	40	43	131
North Carolina.									
Willeyton	H. C. Williams	57	55	50	162	42	47	40	129
Gatesville	J. T. Walton	62	61	61	184	42	43	42	127
Winton	S. S. Daniel	45	38	32	115	26	24	22	72
Tarboro	E. V. Zoeller	54	54	54	162	38	39	39	116
Weldon	T. A. Clark	46	46	45	137	27	30	28	85
Rocky Mount	Gaston Battle	37	31	30	98	25	22	19	66
Springhope	G. W. Bunn	63	62	64	189	41	41	42	124
Wilson	W. S. Harriss	37	39	41	117	22	27	28	77
Louisburg	T. B. Wilder	50	43	41	134	27	23	22	72
Auburn	Troy Poole	42	44	43	134	24	26	25	75
Selma	Dr. R. J. Noble	57	57	55	169	44	44	40	128
Raleigh	C. F. von Herrmann	62	64	66	192	44	44	47	135
Pittsboro	A. H. Merritt	56	50	44	150	40	35	30	105
Moncure	W. H. Thompson	45	45	39	129	32	30	23	85
Fayetteville	Frank Glover	48	44	48	140	38	31	35	104
Laurinburg	L. D. McKennon	35	36	25	96	28	29	19	76
Rockingham	J. M. Stansill	41	41	40	122	29	27	29	85
Wadesboro	W. K. Boggan	27	29	29	85	18	17	19	54
Monroe	T. A. Ashcroft	61	54	53	168	42	38	38	118
South Carolina.									
Cheraw	J. H. Powe	52	52	51	155	39	38	37	114
Lancaster	J. C. Foster	68	67	66	201	45	41	39	125
Santuck	E. W. Jeter	51	48	46	145	35	33	31	99
Little Mountain	J. M. Sease	63	59	54	176	42	36	30	108
Prosperity	J. Perry Cook	36	34	34	104	29	27	26	82
Cross Hill	E. T. McSwain	30	30	30	90	23	23	23	69
Saluda	E. L. Mathis	47	43	40	130	32	30	28	90
Greenwood	M. M. Colhoun	30	32	31	93	30	32	31	93
Trenton	C. A. Long	26[1]	29	29	84	17	17	17	51
Troy	A. C. Kennedy	69[1]	68[1]	67	204	47[1]	36[1]	35	118
Watts	J. W. Thomas	42	38	37	117	34	29	29	92
Mount Carmel	J. D. Cade	23	30	38	91	19	22	28	69
Georgia.									
Leverett	W. C. Powell	27	34	31	92	13	20	20	53
Elberton	H. A. Roebuck	15	14	13	42	12	11	10	33
Camak	J. A. Chapman	24	20	17	61	18	15	11	44
Crawfordville	J. P. Moody	45	46	42[1]	133	24	28	28	80
Athens	C. D. Cox	31[2]	30[2]	27[2]	88	17[2]	17[2]	17[2]	51
Covington	J. S. Carroll	27	28	23	78	19	22	21	62
Talbotton	W. T. Dennis	30	33	28	91	11	14	13	38
West Point	T. J. Jennings	14	12	9	35	11	8	8	27
Columbus	J. W. Long	8	11	11	30	6	10	9	25
Alabama.									
Smith Station	A. H. Frazer	22	21	20	63	17	18	17	52
Fort Mitchell	John Cantey	26	27	29	82	18	18	19	55
Auburn	James T. Anderson	21	18	18	57	20	14	15	49
Loachapoka	W. W. David	19	21[1]	16	56	10	13	11	34
Tallassee	J. T. Jarman	26	23	21	70	20	19	18	57
Union Springs	P. L. Cowan	26	29	30	85	19	21	23	63
Matthews	W. D. Dillard	18	16	14	48	15	13	12	40
Montgomery	F. P. Chaffee	19	16	14	49	14	14	13	41
Highland Home	S. Jordan	8	8	9	25	4	3	3	10
Fort Deposit	C. E. Rein	8	8	8	24	6	7	6	19
Greenville	F. E. Dey	11[3]	8[3]	9[3]	28	12[3]	9[3]	5[3]	26
Pineapple	J. S. Crum	19	22	20	61	19	17	16	52
Castleberry	S. Castleberry	22	22	19	63	19	19	17	55
Bay Minette	M. J. Wilkins	33	32	45	110	20	27	27	74
Latham	M. McGowan	15	15	15	45	7	7	6[1]	20
Mobile	W. M. Dudley	29	22	22	73	17	14	12	43
Mount Vernon	C. Becker	23	20	19	62	21	17	15	53
Citronelle	Dr. J. G. Michael	23	20	21	64	11	7	13	31
Louisiana.									
Poydras	P. F. Relimpio	48	46	45	139	14	13	13	40
New Orleans	R. E. Kerkam	28	41	40	109	13	21	22	56
Houma	Mrs. K. M. Haggerty	23	20	17	59	12	11	8	31
Paincourtville	J. E. Le Blanc	33	38	43	114	24	28	34	86
Franklin	J. M. Bonney	45	49	54	148	31	33	34	98
Centerville	T. P. Boutte	21	22	22	65	14	22	25	61

[1] One day missing. [2] Two days missing. [3] Four days missing.

An inspection of Table 3, percentage of cloudiness, shows that the conditions in the *interior of Georgia and Alabama were better than in North Carolina, South Carolina, or Louisiana.*

TABLE 3.—*Percentage of cloudiness by States.*

Name of the State.	General sky.	Near the sun.
North Carolina	35.8	33.3
South Carolina	33.7	32.1
Georgia	18.4	16.0
Alabama	15.2	14.9
Louisiana	26.5	21.5

Judging from this table it would be much safer to locate in central Georgia or Alabama, upon the southern end of the Appalachian Mountains, *where the track crosses the elevated areas*, than nearer the coast line in either direction, northeastward toward the Atlantic coast, or southwestward toward the Gulf Coast.

TABLE 4.—*Average cloudiness for the several months of the year, as deduced from long series of observations* (*scale* 0–10).

Stations.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Cape Henry, Va	5.8	4.9	5.0	5.0	4.4	4.5	4.7	5.1	4.4	4.2	4.9	5.3	4.8
Norfolk, Va	5.4	5.5	5.1	4.8	4.8	4.8	4.8	5.1	4.7	4.2	4.7	4.8	4.9
Raleigh, N. C	5.6	6.5	5.4	4.7	4.8	5.1	5.6	5.7	5.2	4.3	4.6	4.7	5.2
Charlotte, N. C	5.7	5.3	5.0	4.6	4.8	5.1	5.2	5.2	4.8	3.9	4.3	4.8	4.9
Atlanta, Ga	5.7	5.5	4.7	4.4	4.5	5.1	5.2	5.4	4.4	3.8	4.5	5.1	4.9
Chattanooga, Tenn	6.1	6.0	5.2	4.8	4.7	4.9	4.9	5.0	4.5	4.1	4.8	5.7	5.1
Montgomery, Ala	6.0	5.9	4.8	4.6	4.4	5.2	5.8	5.0	4.4	3.8	4.6	5.4	5.0
Mobile, Ala	5.5	5.4	4.9	4.8	4.4	5.1	5.3	5.0	4.5	3.7	4.4	5.2	4.8
Meridian, Miss	5.1	6.1	5.1	5.1	4.9	5.5	6.3	5.6	4.2	2.5	4.3	5.1	5.0
New Orleans, La	5.3	5.2	4.8	4.8	4.3	4.7	4.9	4.7	4.3	3.5	4.5	5.2	4.7

To exhibit the average cloudiness for these districts, as compiled from data extending over many years, Table 4 is added. It indicates that there is a minimum of cloudiness for May in the South Atlantic and Gulf States, and therefore this season of the year is generally favorable for eclipse work.

An examination of the several days of the interval, May 15 to June 15, 1897, shows that days of cloudiness occurred from May 29 to June 9, the remaining days being generally clear. An inspection of the daily weather maps for the same period shows that from May 15 to May 29, areas of high pressure persistently covered the South Atlantic States, giving fine, clear weather; from May 30 to June 15, the high areas were located in the northwestern districts of the United States, that is, in the Missouri Valley, causing low pressures and lowering skies in the Southern States. Rain areas tended to prevail in the Mississippi Valley, and also on the North Atlantic coast, in which districts the conditions would have been much less favorable for seeing the eclipse than in Georgia and Alabama. It is intended to repeat these observations during the years 1898 and 1899, after which we shall be as well informed as possible regarding the selection of the eclipse stations for the year 1900.

FORESTS AND RAINFALL.[1]

By Prof. H. A. HAZEN (dated September 15, 1897).

Can it be possible that the cutting away of forests affects the amount of precipitation in any locality? To many, no doubt this question will seem easy of answer, but we find the results of study by no means reassuring, and recent investigations have led to almost diametrically opposite conclusions, depending, somewhat at least, upon the feeling of the writer. When we reflect that our rain storms are of very wide extent, oftentimes over 1,000 miles in diameter, and may take their origin and bring their moisture from distances of 1,000 miles or more, the thought that man, by his puny efforts, may change their action, or modify it in any manner, seems ridiculous in the extreme.

It has been well established that forests have a most im-

[1] Presented at the annual meeting of the American Forestry Association at Nashville, Tenn., September 22, 1897.

Chart VII. Cloudiness in Path of Total Eclipse of May 28, 1900.